Original Article

Journal of the Tsuruma Health Science Society Kanazawa University Vol. 39 (1)
23 ～ 34 2015

Development of a tool to evaluate the ability of health providers' assessment skills in breastfeeding

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Abstract

To support breastfeeding, which is recommended around the world, it is vital for healthcare providers to conduct accurate assessments when observing breastfeeding. Therefore, a means of evaluating this ability is required to improve assessment by healthcare providers. This study was performed to develop a tool for evaluating the ability to assess breastfeeding by mothers in the early postpartum period and to investigate the reliability and validity of this tool. Using seven existing assessment tools, observation items required for assessment and evaluation criteria were organized and summarized into 11 compositional elements. Content was put into two composition levels. In the first half, compositional elements were freely described, and in the second half, images of breastfeeding scenes were used to examine assessment of the 11 compositional elements. The tool was scored from 0 to 61 points, with higher scores indicating greater assessment ability. A total of 105 subjects participated in this study. They consisted of 17 International Board Certified Lactation Consultants (IBCLCs), 57 midwives, and 31 midwifery students in the Chubu region, Japan, and the response rate was 100.0%. Scores (mean ± standard deviation) for the three groups were as follows: IBCLCs, 42.9 ± 5.4 points; midwives, 35.3 ± 5.5 points; and midwifery students, 38.2 ± 5.5 points. Significant differences of 0.1% and 5% were observed between the groups. Scores for midwives in workplaces with IBCLCs present were significantly high. Furthermore, scores were significantly higher for midwives that worked at facilities with high rates of mothers continuing breastfeeding after hospital discharge than midwives and midwifery students working at other facilities. The reliability of the tool was supported by a consistency of 0.93 – 1.00 between scorers for the free description portion and the Kuder–Richardson formula (KR-20) alpha coefficient of 0.78. Scores for IBCLCs appeared to be higher because they had undergone continuous education as breastfeeding specialists and had a great deal of experience. The lack of significant differences between midwives and midwifery students may have been affected by subject background factors, such as whether they were undergoing continuous training and attitudes regarding breastfeeding support. The results suggest that the tool developed here has a constant level of reliability and could be utilized for evaluating the ability of healthcare providers to assess breastfeeding.

KEY WORDS

Breastfeeding, Assessment, Tool, Evaluation, Education

Introduction

Breastfeeding is the optimal method of nutrition in the short-term and long-term for both the mother and child [1-4]. The Global Strategy for Infant and Young Child Feeding [5] recommends breastfeeding worldwide and cites that at least two years of continuous breastfeeding should be aimed for. In Japan, 96% of mothers want to breastfeed but at one month postpartum, only 42.4% of mothers are breastfeeding their child. This figure, which was 49.5% in 1985, appears to be declining. This figure then falls further

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to 38.0% at three months postpartum, indicating that difficulties are currently faced in continuing breastfeeding [6].

One significant reason for discontinuing breastfeeding is insufficient knowledge of healthcare providers[7]. In particular, inconsistent instruction given to mothers has been cited as a cause, with different guidance given at different facilities or by different nurses, or mistaken knowledge of nurses can form significant impediments to breastfeeding[8]. Therefore, healthcare givers must acquire accurate knowledge and skills, and it has been reported that special education and training is required [9・10].

Breastfeeding support involves a diverse range of content including skill support, educational support, and psychological support. Noguchi[11], who analyzed the content of breastfeeding care offered by nurses to mothers, demonstrated that 57.2% of this support involved teaching mothers the skills necessary for the act of breastfeeding. As observation and assessment are also important elements for breastfeeding support, nurses need to observe breastfeeding scenes and accurately assess them[12・13] . Because performing inappropriate observation and assessment can cause difficulties when introducing breastfeeding[14], we believe that appropriate evaluation is also necessary from the viewpoint of improving healthcare providers' observation and assessment ability. But there no effective method aim at evaluating the ability to observe and assess breastfeeding scenes, especially in Japan.

Therefore, the purpose of this study was to develop a tool for evaluating the ability of healthcare providers to assess mothers' breastfeeding scenes and to investigate the reliability and validity of this tool.

Methods

This study was performed during March 2008 to November 2008.

1. Tool development procedure and methods

1) Original draft for tool

We used seven existing assessment tools used by healthcare providers and mothers to judge whether the breastfeeding being performed is good or bad. These were the Infant Breastfeeding Assessment Tool (IBFAT) [15], Systematic Assessment of Infant at Breast (SAIB)[12], Mother-Baby Assessment (MBA) [16], LATCH[17], Breastfeeding Evaluation and Education Tool (BEET) [18], BREAST[19] and Mother Infant Breastfeeding Progress Tool (MIBPT) [20]. As a result of comparing the content of these tools, we organized the following 10 items as observation items and evaluation criteria for judging breastfeeding as good or bad. These were (1) positioning, (2) attachment, (3) mother's reaction and perception, (4) signs given by infant, (5) latch-on, (6) sound, (7) swallowing movement and suckling rhythm, (8) breast and nipple state, (9) infant state and (10) other (Table1).

Next, visual evaluation is required in the assessment of breastfeeding scenes. Although some methods involve the use of video footage or voice sounds, it is best that tools for evaluation are convenient and do not require the use of devices or similar. Therefore, we focused on a tool that could evaluate still images so that evaluation could be done on paper.

As a result, of the 10 items outlined above, we decided to focus on the following three. We also further divided each of these three items into 16 elements to make more appropriate and concrete evaluation possible. For (1) positioning, we cited the 10 elements of [1] comfortable position for mother, [2] positional relationship between infant head and trunk, [3] position of infant mouth and nipple, [4] orientation of mother and infant, [5] distance between bodies of mother and infant, [6] positional relationship between infant head and breast, [7] positional relationship between infant trunk and breast, [8] breast support, [9] use of a cushion and [10] infant body support. For (2) attachment, we cited the four elements of [1] infant mouth positioned to include breast, [2] degree of opening of infant mouth, [3] shape of infant's lips and [4] contact surface with breast. For (8) breast and nipple state, we cited the two elements of [1] nipple type and [2] nipple and breast trouble.

2) Observation items according to expert opinions and correction of evaluation criteria for them

Finally, we further refines these based on the opinions of four IBCLCs engaged in breastfeeding support. As a result, we were left with the five elements of comfortable position for mother, positional relationship between infant head and trunk, position of infant mouth and nipple, orientation of mother and infant and distance between bodies of mother and infant for (1) positioning, the four elements of infant mouth positioned to include breast, degree of opening of infant mouth, shape of infant's lips and contact surface with breast for (2) attachment and the two elements of nipple type and nipple and breast

Table 1. Comparison of observation items for seven assessment tools

Observation items			Existing assessment tools						
			IBFAT	SAIB	MBA	LATCH	BEET	BREAST	MIBPT
1 Positionig	Comfortable position for mother		–	–	–	–	○	○	–
	Breast support		–	○	○	○	○	–	–
	Positional relationship of infant head and trunk		–	–	○	○	–	○	–
	Distance between mother and infant		–	–	–	–	○	○	–
	Positional relationship between infant head and nipple		–	–	–	–	○	–	–
	Positional relationship between infant head and breast		–	○	–	–	○	–	–
	Positional relationship between infant trunk and breast		–	○	–	–	–	–	–
	Orientation of mother and infant		–	–	○	○	○	–	–
	Infant body support		–	–	○	–	○	○	–
	Use of a cushion		–	–	–	○	○	–	–
	Can prepare position independently		–	–	–	○	–	–	○
2 Attachment	Infant mouth size		–	○	○	–	○	○	○
	Infant lip shape		–	○	–	○	–	○	○
	Infant tongue position		–	○	○	○	○	○	–
	Strength of attachment to breast		–	○	–	–	–	○	–
	Infant mouth positioned to include breast	To nipple	–	–	–	○	–	–	–
		To areola	–	○	○	–	○	–	○
	Point of contact between infant and breast	Infant tip of nose	–	–	–	–	○	–	–
		Infant chin	–	–	–	–	○	○	–
3 Mother's reaction and perception	Mother's reaction to infant's signs		–	–	○	–	○	–	○
	Milk ejection reaction		–	–	○	–	○	○	–
	Uterine contraction, afterpains		–	–	○	–	○	○	–
	Thirst and sleepiness		–	–	○	–	○	–	–
	Breast aching, sense of milk being ready		–	–	○	–	○	–	–
	Suction strength		–	○	–	–	○	–	–
	Mother's feelings, contact between mother and child		○	–	○	–	–	○	○
4 Signs exhibited by infant	Hunger signs	Rooting reflex	○	–	○	–	○	○	–
		Suckling reflex	–	–	○	–	○	–	–
		Other	–	–	○	–	○	○	–
	Signs of infant fullness	Satisfied appearance	–	–	○	–	○	–	–
		Infant pulls away from breast	–	–	○	–	–	○	–
		Other	–	–	○	–	–	–	–
5 Latch-on	Latch-on action		–	–	○	–	○	–	–
	Latch-on independence		–	–	–	–	–	–	○
6 Sound	Swallowing sound		–	○	○	○	–	○	–
	No clicking sounds or sounds of escaping air		–	○	–	–	–	○	–
7 Swallowing movement and suckling rhythm	Swallowing movement		–	○	○	–	○	○	○
	Suckling rhythm (short rest, repeated suckling)		–	–	○	–	○	○	○
	Cheeks not sunk in		–	○	–	–	○	○	–
	Other		–	○	○	–	–	–	–
8 Breast and nipple state	Nipple shape		–	–	–	○	–	○	–
	Nipple and breast trouble		–	–	○	○	○	○	○
9 Infant state	Wakening level, calmness		○	–	○	–	–	○	–
	Anterior fontanelle not sunken in		–	–	–	–	○	–	–
	Urination, defecation		–	–	–	–	○	–	–
	Weight increase, lactation volume		–	–	–	–	○	–	–
	Lactation intent		○	–	–	○	–	○	–
	Time until lactation		○	–	–	–	–	–	–
10 Other	Breastfeeding intervals		–	–	–	–	–	–	○
	Mother's age		–	–	–	–	–	–	○
	Previous breastfeeding experience		–	–	–	–	–	–	○
	Number of times formula given before discharge		–	–	–	–	–	–	○

trouble for (8) breast and nipple state. We defined the above 11 elements as basic compositional elements for assessment of breastfeeding scenes by healthcare providers (Table 2).

3) Tool composition and scoring method

(1) Tool composition

Content was put into the following two composition levels. The first half involved free description to confirm knowledge of basic compositional elements. Two questions were established as follows: "What observational items are used to determine that the mother and infant are in an appropriate position? Please include all," and "What observational items are used to determine that the infant has attached appropriately to the breast? Please include all."

In the second half, respondents were asked to answer "What advice would you give this mother and infant?" with regards to images in which the 11 elements could be determined. Five such questions were established in multiple choice format.

(2) Image gathering and adaptation

Images were collected between March and June, 2008. Subjects, comprising mothers and infants during the first postpartum week, were photographed during breastfeeding scenes and images for which compositional elements could be determined were selected. After acquiring a total of 115 still images from 14 pairs of mothers and their infants, eight photographs were selected under the supervision of a mother and infant expert.

(3) Scoring method

In the first half, scoring criteria based on the organized elements and their definitions were established (Table 2). If content was recorded that fulfilled the scoring criteria, this was considered to be a correct answer and given 1 point. If there was no description, this was considered an incorrect answer and given 0 points. Total score for the first half ranged from 0 to 19 points.

To score the second half, assessment was conducted using images that could be used to judge the 11 elements. Selection of a suitable answer was given 1 point and selection of an unsuitable answer was given 0 points. Total score for the second half ranged from 0 to 42 points. For the tool overall, scores ranged from 0 to 61 points and higher scores were considered to indicate higher assessment ability.

2. Survey method

In Japan, midwives have an established role in breastfeeding support and we used an existing grouping method as method to investigate construct validity, so our sample comprised International Board Certified Lactation

Table 2. Eleven compositional elements for determining that a breastfeeding scene is satisfactory

	Compositional element	Definition	Observation item	Evaluation criteria
Mother and child breastfeeding position				
1	Comfortable position for mother	The mother is not stiff and in a comfortable position The mother is relaxed	Mother's position	Comfortable/relaxed/not stiff
2	Position of infant head and trunk	The infant's head and trunk are on a straight line. The neck isn't just twisted	Position of infant's mouth and mother's nipple	Facing each other
3	Positional relationship of infant mouth and nipple	The height of the infant's mouth and mother's nipple are aligned, and are directly facing each other (also includes if the nipple and mouth are facing each other)	Infant's position	Infant's head and trunk are in a straight line/neck is not twisted alone
4	Orientation of mother and infant	The mother's body and infant's body are facing each other and the mother's chest or stomach is facing the infant's chest or stomach	Orientation of mother and infant	Mother and infant trunk are facing each other/mother's thoracoabdominal region is touching the infant's thoracoabdominal region
5	Distance between mother and infant trunk	They mother's and infant's bodies are close together with no gaps	Distance between mother and infant trunk	Close, no distance
Infant attachment to breast				
1	Infant mouth positioned to include breast	The infant's mouth encloses up to the mother's areola region	Depth of infant's mouth enclosing breast	Includes up to areola region
2	Degree of opening of infant mouth	The infant's mouth is wide open (140 to 150 degrees)	Infant's mouth is open wide	Open wide Specific figure (140 to 150 degrees)
3	Infant lip shape	When the infant holds the breast in their mouth, their lips are curled outward	Shape of infant's lips when enclosing breast	Curled outward and widened
4	Contact with breast	The infant's chin is touching the mother's breast	Position when infant and mother's breast in contact	Infant chin and breast touching
Nipple and breast state				
1	Nipple shape	The nipple is protruding (not inverted)	Nipple shape	Protruding
2	Nipple and breast trouble	There is no cracking or reddening	Nipple and breast	No cracking or reddening

Consultants (IBCLCs), midwives working at an obstetrics facility and students who were studying basic midwifery training in the fourth year of a nursing university (hereinafter referred to as midwifery students).

1) Survey procedure

(1) Pilot Study

We selected one individual each from the survey subject groups for convenience with a total of three subjects. These subjects were asked to give their opinions about the questionnaire regarding letter size, sentence expressions, time required for answers, and display format. Some of the content was revised.

(2) Main survey

From October to November 2008, we conducted a survey by means of anonymous self-administered questionnaires and collected responses from subjects who consented by placement of the questionnaires or by post.

2) Survey content

The distributed questionnaires included the tool that we created, and also items regarding subjects' backgrounds. These included type of employment, IBCLC qualification, age (years), years of clinical experience (years), years working at an obstetrics ward (years), years being involved in breastfeeding support (years), presence of a child, experience of breastfeeding and if yes how long (years), interest in and recognition of the importance of breastfeeding, methods of learning regarding breastfeeding, methods of learning useful for practice, presence of a workplace policy for breastfeeding support, presence of a qualified IBCLC at the workplace, and presence of colleagues engaged in breastfeeding. Interest in and recognition of breastfeeding support was ranked on a 5-point Likert scale from 1 points: "not at all" to 5 points: "yes, very much so."

3. Investigation of validity

1) Face validity

Sentence expressions were revised in the pilot study.

2) Content validity

Four IBCLCs confirmed the appropriateness of the 11 elements and images. Moreover, the suitability of choices and answers for assessment of images was confirmed by one IBCLC and four teaching staff in the field of midwifery.

3) Construct validity

Based on an existing grouping method[21], we hypothesized that based on knowledge and background experience, scores for the three groups (IBCLCs, midwives, midwifery students) would be highest for the IBCLCs, followed by the midwives and midwifery students in that order.

4. Investigation of reliability

1) Equivalency was calculated from the degree of coincidence between evaluators for scoring of the free description part.

2) Internal consistency was evaluated using the Kuder. Richardson Formula 20 alpha coefficient[22・23].

5. Statistical Analysis

Fundamental statistics, mean values, standard deviation, skewness and kurtosis, Pearson's product-moment correlation coefficient, one-way analysis of variance (ANOVA), the Tukey-Kramer test, the Kuder. Richardson Formula 20 (KR-20) alpha coefficient, Student's t-test and the degree of coincidence between evaluators were calculated. Correlations between variables were calculated using Pearson's product-moment correlation coefficient. The level of significance was set at below 5% and all analyses were performed using statistical analysis software SPSS 16.0J for Windows.

6. Ethical Approval

This study was approved by the Kanazawa University Medical Ethical Board at December 2007. (approval No.110)

Results

1. Subject backgrounds (Table 3)

Of the 31 IBCLCs in the Tokai Hokuriku region of Japan selected for convenience, 17 (54.8%) cooperated. Of the 70 midwives who worked at six facilities in the same region, 57 (81.4%) cooperated, and of the 40 fourth-year students who were studying midwifery at five nursing universities, 31 (77.5%) responded. Overall, answers from 105 subjects were analyzed. The valid response rate for each group was 100%.

Subjects' ages were IBCLCs: 44.1±8.9 years (mean ± standard deviation), midwives: 36.2±10.7 years and midwifery students: 23.0±3.9 years. Years of clinical experience were IBCLCs: 16±9.0 years, midwives: 13.5 ±10.5 years and midwifery students: 0±0 years. The midwives' facilities were all mixed obstetrics and gynecology wards.

2. Comparison of scores between groups (Figure 1)

Scores differed significantly between the three groups

Table 3. Subject Backgrounds

	IBCLCs					Midwives					Midwifery Students				
	N	(%)	Mean ±	SD	Range	N	(%)	Mean ±	SD	Range	N	(%)	Mean ±	SD	Range
Age (years)	15		44.1 ±	8.9	29-59	55		36.2 ±	10.7	21-56	31		23.0 ±	3.8	21-41
20-29	1	(6.7)				21	(38.2)				30	(96.8)			
30-39	4	(26.7)				13	(23.6)				0	(0.0)			
40-49	4	(26.7)				11	(20.0)				1	(3.2)			
50-59	6	(40.0)				10	(18.2)				0	(0.0)			
Years of clinical experience (years)	16		19.0 ±	9.0	7-33	55		13.5 ±	10.5	1-33					
0 -5						18	(32.7)								
6-10	3	(18.8)				7	(12.7)								
11-19	6	(37.5)				15	(27.3)								
20-	7	(43.8)				15	(27.3)								
Years working in obstetrics (years)	16		14.3 ±	8.9	1-33	55		11.1 ±	9.3	1-33					
0-5	1	(6.3)				20	(36.4)								
6-10	7	(43.8)				13	(23.6)								
11-19	2	(12.5)				11	(20.0)								
20-	6	(37.5)				11	(20.0)								
Years providing breastfeeding support (years)	16		13.8 ±	6.5	6-25	54		11.2 ±	9.4	1-33					
0-5	0	(0.0)				20	(37.0)								
6-10	8	(50.0)				12	(22.2)								
11-19	3	(18.8)				12	(22.2)								
20-	5	(31.3)				10	(18.5)								
Workplace breastfeeding support policy	15					48									
Yes	10	(66.7)				28	(58.3)								
No	5	(33.3)				20	(41.7)								
Policy details	9					27									
Ten steps to successful	7	(77.8)				14	(51.9)								
Hospital original	1	(11.1)				12	(44.4)								
Other	1	(11.1)				1	(3.7)								
IBCLC in workplace	16					46									
Yes	9	(56.3)				5	(10.9)								
No	7	(43.8)				41	(89.1)								

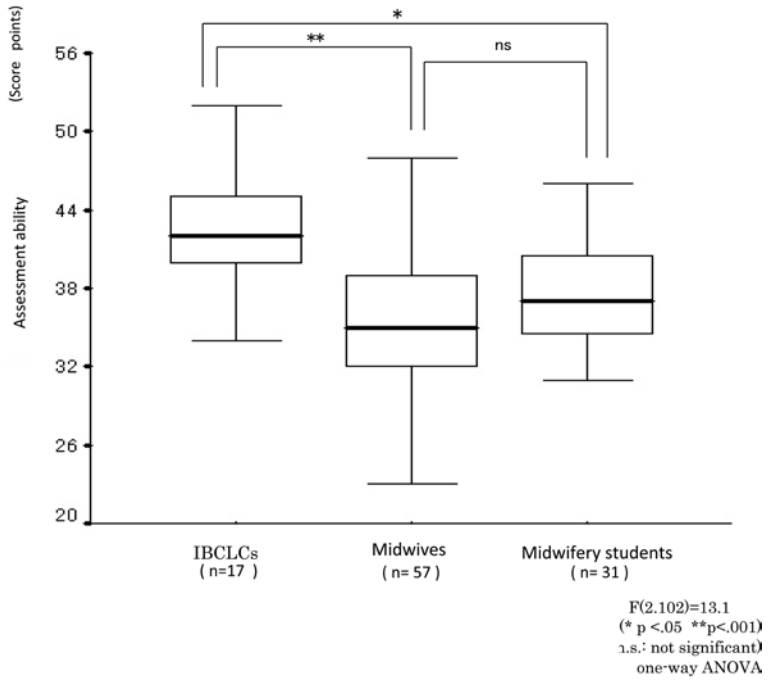

Figure 1. Comparison of assessment ability within the groups

(F (2,102) =13.1; p<0.001). IBCLC group scores (42.9 ± 5.4 points) were significantly higher than the midwife group (35.3 ± 5.5 points; p<0.001). Scores for the IBCLC group were also significantly higher than scores for the midwifery student group (38.2 ± 5.5 points; p<0.05). However, no significant difference was observed between the midwife group and midwifery student group scores (p=0.05).

3. Midwife scores compared among facilities and the presence or absence of an IBCLC

Comparison of scores for each facility at which the midwives worked showed that scores were significantly higher for facility A than for all other facilities (p<0.01) and higher than scores of midwifery students (p<0.05; Figure 2). No significant differences were noted for other facilities. The breastfeeding rate of facility A was 100% at the time of hospital discharge (Table 4).

A significant difference was also observed for whether or not an IBCLC was present at the workplace and between midwifery students (F (2,74) =9.1; p<0.01).

Table 4. Outline of facilities of midwives

Facility		A	B	C	D	E	F
Number of births (births/year)		160	350	500	350	360	272
Breastfeeding rate upon discharge (%)	Breastmilk	100	80	72	70	60	40
	Mixed	0	18	27	30	40	50
	Formula	0	2	1	0	0	10

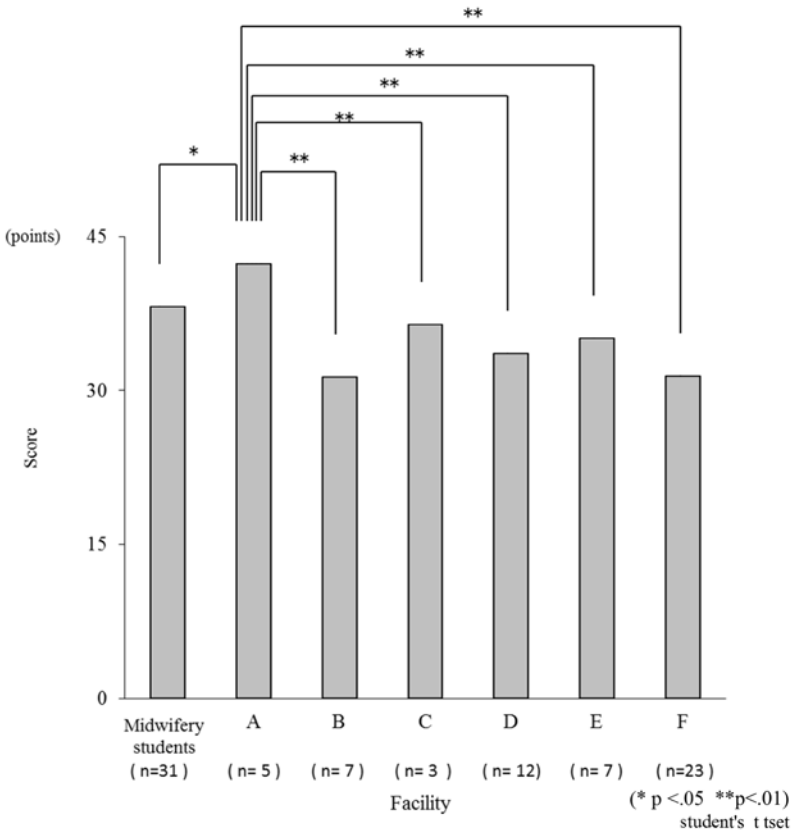

Figure 2. Comparison of scores according to facility and Midwifery students

Midwives with an IBCLC at the workplace exhibited significantly higher scores than both midwives without an IBCLC at the workplace, and midwifery students ($p<0.01$, $p<0.05$; Figure 3)

4. Correlation between scores and subjects' backgrounds

Correlations were noted between scores and the following background factors.

1) IBCLC group

IBCLCs who engaged in "personal study using a textbook" exhibited significantly higher scores (43.9 ± 4.8 points) than IBCLCs who were not (35.0 ± 1.4 points; $p<0.05$). Scores for IBCLCs who used "their own clinical experience" as a useful learning method (46.8 ± 6.4 points) were significantly higher than IBCLCs who were not (41.3 ± 4.2 points; $p<0.05$).

2) Midwife group

Weak positive correlations with scores were noted for "interest in breastfeeding" ($r=0.31$, $p<0.05$) and "importance of breastfeeding" ($r=0.37$, $p<0.01$). There was no positive correlation between scores with background factors.

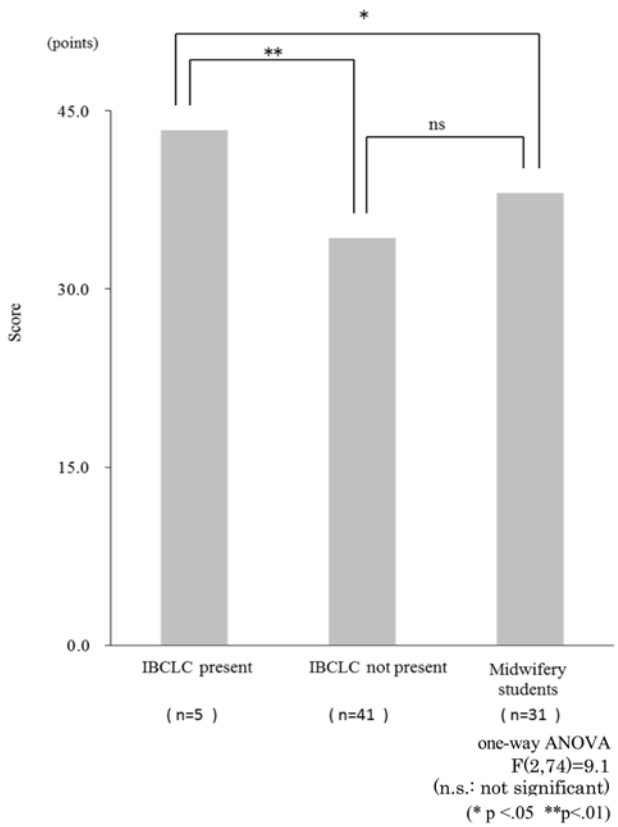

Figure 3. Comparison of scores according to Presence of IBCLCs at workplace effect on Midwives' scores and Midwifery students

3) Midwifery student group

A fairly positive correlation was noted between scores and "frequency of participation in workshops" ($r=0.41$, $p<0.05$), and a weak positive correlation was noted with "interest in breastfeeding" ($r=0.41$, $p<0.05$).

Scores for midwifery students who participated in workshops (42.7 ± 8.1 points) were significantly higher than midwifery students who did not (37.1 ± 4.3 points; $p<0.05$).

5. Investigation of reliability

1) Coincidence between scorers

Two individuals researcher gave scores based on the definitions and scoring standards for the 11 compositional elements. As a result, the degree of coincidence between the scorers for the free description part ranged from 0.93 to 1.00. Although this formula tends to lead to an increased inter-scorer degree of coincidence [21], the fact that results were at least 0.93 for all items indicated that a constant level of equivalency was achieved.

2) Investigation of internal consistency

The alpha coefficient calculated with KR-20 was 0.78.

6. Response content not included in scoring standards

Respondents were requested to comment on the (1) positioning and (2) attachment elements in the first half of the tool with regards to the following content.

Some content was difficult to determine according to still images such as swallowing sound, signs emitted by the infant, swallowing movement and suckling rhythm, infant state, tongue position and degree of mother fatigue. Therefore, we excluded these from the tool development process.

Discussion

1. Investigation of construct validity

Because practical ability improves in the process of development from novice to veteran, we based our comparison of the scores of the three groups on the assumption that scores would be lowest for midwifery students, followed by midwives and IBCLCs in that order. Because results indicated that significant differences were noted between IBCLCs and the two groups of midwifery students and midwives, we partially confirmed construct validity. The fact that a significant difference was not noted between midwifery students and midwives will be discussed below.

Comparison of midwives according to their facilities

indicated that midwives who worked at facility A scored higher than midwives who worked at other facilities and their scores were also significantly higher than midwifery students (Figure 2). No significant difference, however, was observed with the IBCLC group. The fact that the breastfeeding rate at time of discharge was 100% for facility A (Figure2) suggests that the characteristics of the facility were affecting the results. Midwives who had a qualified IBCLC at their workplace had higher scores than those who did not, indicating that workplace environment affects scores. Thus, we believe that we should have selected subjects taking facilities with workplace environments expected to have a correlation with tool scores into account.

2. Correlation between scores and subjects' backgrounds

1) Correlation between IBCLC backgrounds and scores

IBCLCs who engaged in "personal study using a textbook" and IBCLCs who used "their own clinical experience" as a useful learning method exhibited high scores. In this study, we subjects comprised IBCLCs as specialists in breastfeeding support. This qualification has a re-certification system that requires individuals to autonomously engage in continuous learning. Therefore, IBCLCs are constantly acquiring the latest knowledge and skills[23].

IBCLCs engage in continuous learning in the process of studying for re-certification, gain the ability to execute quick judgment based on experience built up as a specialist, and their learning in the clinical field expands by means of rich basic knowledge[24]. The above findings suggest that effectively using a wealth of experience to then build up a body of experience was reflected in the high scores of IBCLCs in this study.

2) Correlation between midwife backgrounds and scores

Midwives' scores exhibited weak positive correlations with "interest in
breastfeeding" and "importance of breastfeeding". Midwives who had an IBCLC in their workplace had significantly higher scores than those who did not ($p<0.001$).

Laura[25] wrote that the volume of knowledge and positive attitudes of nurses made the support that they implemented effective. The positive correlations observed between midwives' scores and "interest in breastfeeding" and "importance of breastfeeding" appear to support this. Thus, strong interest in breastfeeding support and recognizing the importance of breastfeeding appears to lead to learning about appropriate breastfeeding support methods and makes individuals positively engage in skill acquisition.

Next, we believe that the presence of a qualified IBCLC at the workplace creates opportunities for promoting breastfeeding support to surrounding midwives and sharing knowledge and skills. Next, we will discuss the fact that scores for midwives without an IBCLC in the workplace were significantly lower than scores for midwives who had an IBCLC in the workplace and scores for midwifery students. In the current state of affairs with increasingly advanced medical treatment in perinatal management, and more obstetrics wards becoming mixed wards due to the falling birth rate, opportunities for growth and autonomy by midwives may be being prevented in their workplaces[26]. Furthermore, it is possible that routine systems and workplace practices, and prescribed actions are greatly impairing effective support for breastfeeding[27]. It has been reported that when nurses of the same workplace rely upon each other while lacking knowledge, the importance of learning about breastfeeding is trivialized[28]. Thus, it has been suggested that nurses need to grasp the boundaries and limitations of their own clinical experience in the workplace[29] and continue to acquire knowledge based on the latest evidence.

3) Correlation between midwifery student backgrounds and scores

Currently, there is only a short period of learning regarding midwifery at four-year nursing universities and adverse effects caused by lack of time and the low level of practical ability that students have when they graduate are currently viewed as problematic[30]. When students select one area of clinical specialty at an early stage, they gain an opportunity to learn a process for acquiring advanced clinical knowledge, and this is considered extremely beneficial for increasing learning effects[24]. This is equivalent to midwifery students selecting the specialty field of midwifery during their nursing education. Midwifery students' scores exhibited positive correlations with "frequency of participation in workshops" and "interest in breastfeeding". We also found that midwifery students who participated in workshops exhibited significantly higher scores than those who were not. This indicated that midwifery students were demonstrating

recognition of their role as specialist and attempting to improve their level of specialty. Therefore, it appears that role perception has a positive effect on knowledge acquisition[25].

3. Significance of the basic assessment tool

This tool focused on (1) positioning and (2) attachment. These are both basic elements of breastfeeding support and it is best to acquire skills and experiencing regarding them[27]. Therefore, we believe that our tool contained content that is important for establishing breastfeeding. Comparison according to facility indicated that scores for midwives who worked at facilities with a breastfeeding rate upon discharge of 100% were significantly higher than for midwives who worked at facilities with a breastfeeding rate upon discharge of below 100%. This therefore demonstrates a correlation between scores and breastfeeding rates. Thus, this research tool may be useful for evaluating the ability of nurses to conduct breastfeeding support.

4. Future issues

Breastfeeding support includes multilateral content such as that described by Wallace et al.[31] and Noguchi[11] asserted that the provision of information and psychological and peer support to increase mothers' confidence was more important than providing direct skills. Results suggested that this tool could be utilized to evaluate nurse ability. However, because it focused on only some parts of support content, further investigation is required including other content and methods of evaluating it in order to assess all relevant abilities.

As this study included a small sample from a limited area, further analysis needs to be conducted in the future with a larger sample size including more regions.

Conclusions

In the aim of developing a tool for scoring and evaluating nursing abilities in breastfeeding scenes, this study came to the following conclusions.

1. We developed a tool for evaluating healthcare providers' abilities in breastfeeding scenes and confirmed its face validity, content validity and construct validity.

2. Reliability was supported by inter-scorer degree of coincidence and internal consistency.

3. Attributes that affected midwife assessment ability were facilities with high breastfeeding rates upon discharge and facilities at which midwives worked together with IBCLCs.

4. This tool focused on important and basic content for nurses providing support in breastfeeding scenes and results suggested that it is a useful evaluation and training tool for students and for the continuous education of midwives.

Acknowledgements

We would like to extend our deep gratitude to all of the mothers, facilities and staff members who cooperated in our research throughout the course of this study. Upon the conclusion of this report, we would also like to thank Masayo Awano, certified IBCLC and Kanazawa University Graduate School research collaborator. This research report is a reconsideration and partial revision of a master's thesis reported as part of a Master's program.

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授乳場面におけるアセスメント能力の評価ツールの開発

小西佳世乃

要　　旨

母乳育児推進には授乳場面の正しい観察とアセスメントが重要である。医療従事者のアセスメント能力向上のために、その能力を評価する方法が必要である。本研究は出産後早期の授乳場面のアセスメント能力を評価するツールを開発し、その信頼性と妥当性の検討を目的とした。1. ツールの作成：既存の 7 つのアセスメントツールを用いて、観察とアセスメントに必要な項目とその判断基準を 11 個の構成要素に整理した。内容は 2 段構成とし、前半は構成要素について自由記載、後半は授乳場面の静止画像を用いてアセスメント内容を問うた。全体の得点は 0 点から 61 点で、得点が高いほどアセスメント能力が高いとした。2. 対象：中部地方の国際認定ラクテーション・コンサルタント（以下 IBCLC）17 名、助産師 57 名、助産学生 31 名を合わせた 105 名を対象とし、有効回答率は 100.0% であった。3 グループの得点は 42.9 ± 5.4 点（平均値± SD）、35.3±5.5 点、38.2±5.5 点であった。IBCLC と他 2 グループ間にはそれぞれ有意差がみられた。また、IBCLC が職場にいる助産師の得点が有意に高く、退院時の母乳育児率が高い施設の助産師は他施設の助産師や助産学生と比較して有意に高かった。信頼性は自由記載部分の採点者間の一致度 .93 から 1.00 と Kuder-Richardson' formula（KR-20）の α 係数 0.78 から支持された。IBCLC は母乳育児の専門家として継続教育を行い、豊富な経験があるため得点が高かったと考えられる。助産師と助産学生間に有意差がみられなかった点は、継続学習の有無や母乳育児支援への考えなどの対象の背景が影響していると考えられる。